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EXAMINER

LIU, HARRY K

ART UNIT

PAPER NUMBER

3662

MAIL DATE

DELIVERY MODE

11/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,550

Applicant(s)

LEINONEN ET AL.

Examiner

HARRY LIU

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed (08/29/2008). Claims (1-10, 13-37) are pending and an action is as follows. Claim 37 is newly added.

Applicant's arguments with respect to claims (1-2) have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **1-10, 13-37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner (6107960) in view of Hunter (2004/0176034).

Regarding claims 1, 19 & 31, 37, Krasner discloses a co-located cellular and GPS device comprising,

- a communication system transmitter (article 106, 107 in FIG. 2 below & column 1, lines 56) configured to transmit signals via a radio interface in a first frequency band (cellular band);

- a receiver configured to receive signals via a radio interface in a second frequency band (GPS band)(GPS receiver in FIG. 2 below), said receiver including an attenuation component (col. 7, lines 13-35, microprocessor and power level control

controls power level to GPS receiver, see FIG. 2 below) configured to attenuate signals received by said receiver;

- at least one **processor** (article 104 and 115) configured to set an attenuation which is applied by said attenuating component to signals received by said receiver to a higher value (more attenuation, less/no signal) in case said communication system transmitter is transmitting signals with a power level exceeding a certain value, and to an attenuation which is applied by said attenuating component to signals received by said receiver to a lower value (lower attenuation, high signal) in case no signal is transmitted by said communication system transmitter, wherein said higher value is sufficiently high to prevent an evaluation of said attenuated received signals, when said attenuation is set to said higher value.

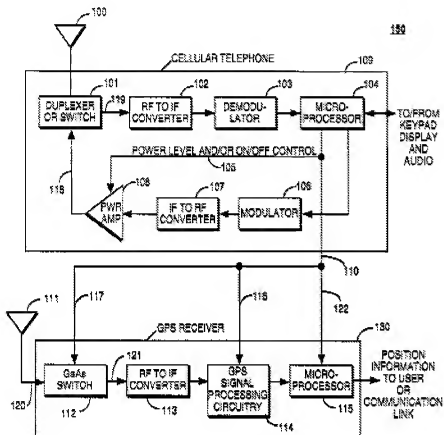


FIG. 2

Krasner does not specifically disclose attenuator or non-blocking attenuating signal. However, Hunter teaches a radio receiver identifies a strong interference from transmitter and attenuates the transmission into receiver while maintaining sensitivity (claim 1 & paragraph 0003-0004) .It would have been obvious to modify Krasner with

Hunter by incorporating claimed features in order to reduce interferences between TX and RX while maintaining receiver's sensitivity.

Regarding claims 2, 9, 13, 20, 25, 32, Krasner discloses a variable gain (power level control) amplifier (power amplifier 108) with controlling portion **inherently** setting attenuation value based on amplification of transmitter power (when power level control signal reduces power to cellular transmitter, GPS receiver turns on, col. 7, lines 19-28). Though Krasner does not specifically attenuation increases with transmitter amplification, Krasner teaches use of limiting circuitry (col. 7, lines 36-54) in controlling GPS received signal which a **variable** attenuation. It would have been obvious to modify Krasner by incorporating a variable attenuation increases with amplification of cellular transmitter in order to dynamically control the cross interference from cellular part into GPS receiving section.

Regarding claims 7-8, 23-24, 35, Krasner discloses communication system includes a receiver (cellular transceiver) receiving first frequency band (cellular band) and inherently the controlling portion determines an attenuation based on power level of signal received by communication system receiver. A cellular device amplifier increases transmitting signal when the received signal is weak and vice versa. It would have been obvious that controlling attenuation is also based on received power of the communication system when determining transmitting power.

Regarding claim 10, Krasner does not specifically disclose an amplifier configured to amplify receiver second frequency band (GPS band) or the variable attenuation is between the amplifier and processing portion. However, it is a known

technique in (GPS) receiver by use of an LNA to boot up received signal. It would have been obvious Krasner has a GPS signal amplifier for amplifying received signals at the front end (before or after the down conversion unit 113) and the variable attenuation (path 116, 117 or 122) is between amplifier and processing portion (115).

Regarding claims 15, 26, 28, Krasner discloses attenuating GPS signal using variable gain attenuation, as applied to claims 1 and 19 rejection above, this attenuation component will attenuate signal in its operating voltage or amplification.

Regarding claims 16, 29, Krasner discloses the second frequency band (GPS band) receiver has an RF to IF converter but fails to specifically disclose IF to baseband conversion. However, it is known GPS signal processor (114) integrates IF to baseband conversion component. The attenuation is applied via paths 117, 116 or 122 which may apply directly to RF, IF or baseband.

Regarding claim 17, 30, 36, Krasner does not specifically disclose evaluating **only in case** received signal have a sufficiently high power level. However, GPS receiver does not acquire signal unless the received signal is high enough. It would have been obvious to modify Krasner by incorporating claimed features in order to reduce cross interference into GPS receiver only when it is operating.

Regarding claims 3, 21, Krasner discloses said device comprises a communication system section including said communication system transmitter and a receiver section including said receiver configured to receive signals in a second frequency band, and wherein said controlling portion is located in at least one of said communication system section and said receiver section.

Regarding claim 4, Krasner discloses the controlling portion (micro processor 104 and 105) includes a part of communication system and a part of receiver section (see FIG. 2 above).

Regarding claims 5-6, 22, 33-34, Krasner discloses automatic gain control (use of microprocessor and power level control in cellular part and another microprocessor and GPS signal processing circuitry) and controlling portion **combining** information from auto gain control and from communication system section including said transmitter determining attenuation to be set. Power level control detects and controls power amplification to cellular transmitter, this information passes through controlling portion and an attenuation level determined and then applied to GPS section.

Regarding claims 14, 27, Krasner discloses RF circuit which involves LO in **detuning** the signals received by antenna.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Liu whose telephone number is 571-270-1338. The examiner can normally be reached on Monday -Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, please **leave a voice message** with application serial number and nature of call, a response within 24 hours can be expected during regular business days. Also, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-270-2338.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Harry Liu
Examiner, Art Unit 3662

November 5, 2008

/Thomas H. Tarcza/

Supervisory Patent Examiner, Art Unit 3662